Federal Democratic Republic of Ethiopia

EDICT OF GOVERNMENT

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ET 16 (2001) (English): PULSES-GRADING OF BEANS

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ETHIOPIAN
STNADRAD

ES 16:2001
(Reaffirmed:2012)

Second edition

Pulses — Grading of beans

ICS: 67.060

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Foreword

This Ethiopian Standard has been prepared under the direction of the Technical Committee for Cereals, pulses and derived products (TC 11) and published by the Ethiopian Standards Agency (ESA).

The standard is a reaffirmation for reprint of the Ethiopian Standard ES 16:2001, Pulses - Grading of beans, with some editorial changes without altering the technical contents in the former text.

Pulses — Grading of beans

1 Scope

This Ethiopian Standard specifies the requirements for grading of whole, shelled or split beans which are intended for human consumption.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Ethiopian Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Ethiopian Standard are encouraged to investigate the possibility of applying the most recent editions of the Ethiopian Standards indicated below. Registers of currently valid standards are maintained in the Quality and Standards Authority of Ethiopia.

ES ISO 520:2001, *Cereals and pulses – Determination of the mass of 1000 grains.*

ES ISO 605:2001, *Pulses – Determination of impurities, size foreign odours, insects, species and varieties – Test methods.*

ES ISO 665:2001, *Oilseeds – Determination of moisture and volatile matter content.*

ES ISO 13690:2001, *Cereals, pulses and milled products – Sampling of static batches.*

ES ISO 6322-1:2001, *Storage of cereals and pulses- Part 1: General recommendations in keeping cereals.*

ES ISO 6322-2:2001, *Storage of cereals and pulses- Part 2: Essential requirements.*

ES ISO 6322-3:2001, *Storage of cereals and pulses- Part 3: Control of attack of pests.*

ES ISO 6639-1:2001, *Cereal and pulses – Determination of hidden insect infestation* - Part 1: General principles.

ES ISO 6639-2:2001, *Cereal and pulses – Determination of hidden insect infestation - Part 2: Sampling.*

ES ISO 6639-3:2001, *Cereal and pulses – Determination of hidden insect infestation - Part 3: Reference method.*

ES ISO 6639-4:2001, *Cereal and pulses – Determination of hidden insect infestation - Part 4: Rapid method.*

3 Definitions

For the purpose of this Ethiopian Standard the definitions in ES 678 shall apply.

4 Classification of beans

4.1 By type

4.1.1 Haricot bean

4.1.2 Flat beans

4.1.3 Horse beans/Field peas/

4.1.4 Pea beans

4.1.5 Cow pea

4.2 By size

Beans shall be coded and identified by sizes using either elongated or round aperture sieve seizes of the following:

Table 1 – Classification of Haricot beans, Flat beans and Horse beans using elongated holed sieve sizes

Designation of bean sizes	Aperture sieve sizes in mm
Large	Retained on 8.5
Medium A	Retained on 7.5 but passing through 8.5
Medium B	Retained on 6.5 but passing through 7.5
Smalls A	Retained on 5.5 but passing through 6.5
Smalls B	Retained on 4.5 but passing through 5.5
Rejects	Passing through 4.5

Table 2 - Classification of Pea beans by size using round holed sieve sizes

Designation of pea bean	Aperture sieve sizes in mm
Pea beans B	Retained on 8.0
Pea beans A	Retained on 4.0 but passing through 8.0
Pea beans C	Passing through 4.0

4.3 By color

Each group of beans in 4.2 shall be further identified by color as:

a) white

b) black

c) red

d) brown

e) spotted and

f) other or mixed colors

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5 Requirements

5.1 General

5.1.1 Each class of beans shall be clean, sound uniform in size with natural color or appearance shall be free from foreign or abnormal odors.

5.1.2 Each class of beans shall not contain more than 14% by mass of moisture content when determined in accordance with the method of test specified in ES ISO 665.

5.1.3 Each class of beans shall be free from, living or dead insects, hidden insect infestation, insect fragments, insect webbing, glass and metal fragments when examined physically or when determined in accordance with the method of test specified in ES ISO 605 and/or ES ISO 6639 Parts 1 to 4.

5.1.4 Each class of beans shall not contain 0.05% toxic seeds of crololaria (Crotolaria spp.), corn cockle (Agrostemma gÜhago L.), Castor bean (Ricinus Communis L.), Jimson weed (Datura spp.) in a given sample taken in accordance with the method of sampling specified in ES ISO 605.

5.1.5 Seeds of a similar color but a different in shape type (except in beans with white color) shall not exceed 10% when determined in accordance with the method of test specified in ES ISO 605.

5.1.6 Split bean or beans without seed-coats shall not contain more than 1% by mass of moisture contetn when determined in accordance with the method of test specified in ES ISO 665.

5.2 Grades

5.2.1 Principles

The following principles shall be observed in establishing grades for beans.

5.2.1.1 Each class of beans shall be graded in relation to the defects and /impurities/ present

5.2.1.2 Defects and impurities/for all classes of beans shall be blistered, wrinkled and/or broken, splits, damaged beans, foreign matter and contrasting classes. Contrasting classes shall not apply to horse beans.

5.2.1.3 Each class of haricot, flat and pea beans shall be well screened with the appropriate sieve sizes indicated in Table 1 and 2 herein and hand picked later.

5.2.1.4 Each class of beans shall not contain more than 14% of moisture by mass when determined in accordance method of test specified in ES ISO 605.

5.2.1.5 Each class of beans shall comply with the grade requirements specified in Table 1, 2 and 3.

Table 3 – Grade and grade requirements for the Class of Haricot and Flat Beans

Maximum limits %, by mass								
Grade	**Total blistered wrinkle and/or broken beans**	**Splits**	**Damaged**		**Foreign matter**		**Pieces of glasses or metals**	**Contras-ting class**
			Total	**Badly damaged**	**Total**	**Stones**		
1	2.5	2.0	1.5	0.5	0.2	0.01	Nil	0.2
2	3.5	3.0	3.0	1.5	0.5	0.2	Nil	0.5
3	5.0	5.0	4.0	2.0	1.0	0.3	Nil	1.0
4	8.0	8.0	5.0	2.5	1.5	0.6	Nil	2.0
5	Sub- standard grade beans are beans that do not meet the requirements specified in clause 5							

Table 4 – Grade and grade requirements for the class of Horse Beans

Maximum limits, in % by mass				
Grade	Total defects	Foreign matter		
		Total	Stones	Glasses & metals
1	4.0	1.5	0.2	Nil
2	6.0	2.0	0.4	Nil
3	8.0	2.5	0.6	Nil
4	Sub- standard grade beans are beans that do not meet the requirements specified in clauses 5			

Table 5 – Grade and grade requirements for the class Pea Beans

Grade	Total Defects	Badly damaged Peas	Foreign matter		Glass Metal	Contrasting classes
			Total	Stones		
Hand Picked 1	2.0	0.3	0.10	0.01	Nil	0.01
2	2.5	0.5	0.50	0.05	Nil	0.01
Screened 1	3.5	0.8	0.80	0.20	Nil	0.50
2	4.0	1.0	1.00	0.40	Nil	1.00
Sub standard	Sub- standard grade of pea beans are pea beans that do not meet the requirements in clauses 5					

5.3 Pesticide residues

Dry peas shall comply with the maximum pesticide residue limits specified in Table 2. The test method for determining the pesticide residues limits is under preparation.

Table 6 - Maximum pesticide residue limits in beans (dry)

Pesticide	Value		Symbols		
ALDRIN AND DIELDRIN	MRL (mg/kg)	0.05			
ALDICARB	MRL (mg/kg)	0.1			
BENTAZONE	MRL (mg/kg)	0.05	(*)		
CARBENDAZIM	MRL (mg/kg)	2			
CHLOROTHALONIL	MRL (mg/kg)	0.2			
CYCLOXYDIM	MRL (mg/kg)	2			
DELTAMETHRIN	MRL (mg/kg)	1	Po		
DICOFOL	MRL (mg/kg)	0.1			
DIQUAT	MRL (mg/kg)	0.2			

Table 2 - cont'd

FLUCYTHRINATE	MRL (mg/kg)		0.05	(*)	
GLYPHOSATE	MRL (mg/kg)	2			
IPRODIONE	MRL (mg/kg)	0.1			
LINDANE	MRL (mg/kg)	1		Po	
MALATHION	MRL (mg/kg)	8		Po	
METHIDATHION	MRL (mg/kg)	0.1			
METHOMYL	MRL (mg/kg)	0.1			
PARATHION-METHYL	MRL (mg/kg)	0.05	(*)		
PERMETHRIN	MRL (mg/kg)	0.05	(*)		
PERMETHRIN	MRL (mg/kg)	0.1			
PROPARGITE	MRL (mg/kg)	0.2			

5.4 Mass of 1000 grains

The quality of bean grains shall be determined by the mass of 1000 grains in accordance with the method of test specified in ES ISO 520.

6 Beans for export

6.1 Except for pea beans the lowest grade shall be grade 3 for beans.

6.2 For export of pea beans, the lowest grade shall be screened 2 as in table 5 "A".

6.3 Tests for insects infestation and contamination

Insect infestation and rodent contamination shall be determined in accordance with the method of test specified in ES ISO 6639 Parts 1 to 4

6.4 Handling

Beans shall be handled in accordance with the method of storage specified in ES ISO 6322 Parts 1 to 3.

7 Sampling

Sampling of beans shall be carried out in accordance with the ES ISO 13690.

8 Packing

Pulses shall be packed in new, clean, sound, moisture proof containers as specified in ES 666.

9 Labelling and marking

9.1 Labelling

Each container of pulses shall be labelled with the following information

a) Name of the product;

b) Name of producer, exporter/importer;

c) Class, type, grade and color of the product;

d) Country of origin;

e) Net weight in KGs;

f) Batch or identification code; and

g) Any other information required by the purchaser.

9.2 Marking

Each container of beans that is in compliance with this Ethiopian Standard shall bear the Quality Mark upon approval by the Quality and Standards Authority of Ethiopia.

10 Compliance with the standard

A lot beans shall be deemed to comply with this Ethiopian Standard if upon inspection and testing the provision in clause 3, 4, 5, 7, 8 and 9 are satisfied.

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Ethiopian Standards Agency

Organization and Objectives

The Ethiopian Standards Agency (ESA) is the national standards body of Ethiopia established in 2010 based on regulation No. 193/2010.ESA is established due to the restructuring of Quality and Standards Authority of Ethiopia (QSAE) which was established in 1970.

ESA's objectives are:-

- ❖ Develop Ethiopian standards and establish a system that enable to check weather goods and services are in compliance with the required standards,
- ❖ Facilitate the country's technology transfer through the use of standards,
- ❖ Develop national standards for local products and services so as to make them competitive in the international market.

Ethiopian Standards

The Ethiopian Standards are developed by national technical committees which are composed of different stakeholders consisting of educational Institutions, research institutes, government organizations, certification, inspection, and testing organizations, regulatory bodies, consumer association etc. The requirements and/ or recommendations contained in Ethiopian Standards are consensus based that reflects the interest of the TC representatives and also of comments received from the public and other sources. Ethiopian Standards are approved by the National Standardization Council and are kept under continuous review after publication and updated regularly to take account of latest scientific and technological changes.
Orders for all Ethiopian Standards, International Standard and ASTM standards, including electronic versions, should be addressed to the Documentation and Publication Team at the Head office and Branch (Liaisons) offices. A catalogue of Ethiopian Standards is also available freely and can be accessed in from our website.

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International Involvement
ESA, representing Ethiopia, is a member of the International Organization for Standardization (ISO), and Codex Alimentarius Commission (CODEX). It also maintains close working relations with the international Electro-technical Commission (IEC) and American Society for Testing and Materials (ASTM).It is a founding member of the African Regional Organization for standardization (ARSO).

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